EET4340

Lab 2 SPI

Part 1 – SPI with an EEPROM

Start with the SPI.c file and the LCD code. Get an EEPROM from me. Check the datasheet to see the pinouts. Wire the EEPROM on a breadboard per the wiring instructions at the beginning of the SPI.c file.

1. Modify the SPI firmware so it stores an additional value in the EEPROM each time the button is pressed. If the count is odd it should store an ‘O’ at address 0x0400. If the count is even it should store an ‘E’. The firmware should read this value on reset and display it on the LCD along with the count stored at address 0.
2. Currently the count is stored as a one byte value so the largest possible count that can saved is 255. (See what happens if the count goes over 255.) Modify the firmware so it stores the count as a two byte value. You will also need to read it in as a two byte value.
3. Modify the SPI firmware so it stores a string to the EEPROM when the button is pressed and reads the string each time the uController is reset. You can rotate through 3 or 4 strings in the main loop for some variety (instead of incrementing the counter just change the string.) Store the string starting at address 0x0300. Keep the strings short – less than 16 characters.
4. See if you can modify the code for problem 3 to use interrupts instead of polling. I’ll give some hints on this so ask me when you get to this problem. Also take a look at the USART code from the last lab. The transmit used interrupts to send out a string.